

**Subsurface Drain**...a conduit, such as corrugated plastic tubing, tile, or pipe, installed beneath the ground surface to collect and/or convey drainage water



Subsurface drain installation, photo courtesy USDA – Natural Resources Conservation Service

## Purposes

This practice is designed to support the following purposes:

- ☑ Collect ground water for beneficial uses
- ☑ Remove water from heavy use areas, such as around buildings, roads, and play areas; and accomplish other physical improvements related to water removal.
- ☑ Regulate water to control health hazards caused by pests such as flukes, flies, or mosquitoes
- ☑ Improve the soil environment for vegetative growth, reduce erosion, and improve water quality by:
  - Regulating water table and ground water flows
  - Intercepting and preventing water movement into a wet area
  - Relieving artesian pressures
  - Removing surface runoff
  - Leaching of saline and sodic soils
  - Serving as an outlet for other subsurface drains
  - Regulating subirrigated areas or waste disposal areas

## Benefits

Subsurface drainage can provide a number of benefits, including an increase in the movement and quantity of air in the soil and the activity of soil bacteria. Subsurface drains can also reduce soil erosion, thereby reducing the potential for sedimentation of outlet streams or waterways.

## Applications

This standard applies to areas having a high water table where the benefits of lowering the water table or controlling ground water or surface runoff justify the expense. The soil must meet certain suitability requirements and an adequate outlet must be available to assure the drain will function properly.

## Design and Installation

The design and installation of a subsurface drain should be based on adequate surveys and investigations in order to determine capacity, size, materials, and the need for filters or any additional structures. The depth, spacing, and location of the drain shall be based on site conditions, including soils, topography, ground water conditions, crops, land use, and outlets. In addition, consider the effects the system will have on water quantity and quality. Consult an NRCS conservationist for more details.

## Maintenance

At least annually, the outlet conduit and animal guards should be inspected for proper functioning. Inlets, trash guards, collection boxes, and other structures should be kept clean and free of materials that can reduce the flow. Any lines, inlets, or breathers that are crushed or broken should be repaired promptly to insure proper functioning.

## Relative Cost

**Installation**      low ●●○○○ high

**Maintenance**      low ●○○○○ high

## For Additional Information...

Visit the Minnesota NRCS office online at <http://www.mn.nrcs.usda.gov/>, see the Minnesota Field Office Technical Guide (FOTG) standard for (606) Subsurface Drain, or contact your local USDA-NRCS office.

*Local USDA-NRCS contact information*